



US009636805B2

(12) **United States Patent**
Wang

(10) **Patent No.:** **US 9,636,805 B2**
(45) **Date of Patent:** **May 2, 2017**

(54) **RETRACTABLE PLIERS**

(56) **References Cited**

(71) Applicants: **HANGZHOU GREAT STAR TOOLS CO., LTD**, Hangzhou, Zhejiang Province (CN); **HANGZHOU GREAT STAR INDUSTRIAL CO., LTD**, Hangzhou, Zhejiang Province (CN)

U.S. PATENT DOCUMENTS

5,142,721 A * 9/1992 Sessions B25B 7/22 30/123
6,003,180 A * 12/1999 Frazer B25F 1/04 7/128

(72) Inventor: **Min Wang**, Hangzhou (CN)

(Continued)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 191 days.

FOREIGN PATENT DOCUMENTS

CN 2278565 Y 4/1998
CN 2912916 Y 6/2007

(Continued)

(21) Appl. No.: **14/369,678**

(22) PCT Filed: **Mar. 15, 2013**

OTHER PUBLICATIONS

(86) PCT No.: **PCT/CN2013/072733**

International Search Report issued in PCT/CN2013/072733 dated Jun. 6, 2013 and English Translation, 8 pages.

§ 371 (c)(1),

(2) Date: **Jun. 27, 2014**

(Continued)

(87) PCT Pub. No.: **WO2013/135202**

PCT Pub. Date: **Sep. 19, 2013**

Primary Examiner — Hadi Shakeri

(74) *Attorney, Agent, or Firm* — Lewis Roca Rothgerber Christie LLP

(65) **Prior Publication Data**

US 2015/0020651 A1 Jan. 22, 2015

(57) **ABSTRACT**

(30) **Foreign Application Priority Data**

Mar. 16, 2012 (CN) 2012 1 0070314

(51) **Int. Cl.**
B25B 7/18 (2006.01)
B25F 1/00 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC **B25B 7/18** (2013.01); **B25F 1/003** (2013.01); **B25F 1/04** (2013.01); **B25G 1/063** (2013.01)

(58) **Field of Classification Search**
CPC ... B25F 1/04; B25F 1/003; B25B 7/18; B25G 1/063

(Continued)

The present invention discloses a pair of retractable pliers, comprising a jaw body which comprises a first and a second jaw part that are articulated together via an articulated shaft, and a handle body which comprises a first and a second internal housing. The first and the second jaw part each have a pliers head and a connection part, and the connection parts of the first and the second jaw part are slidably connected to the first and the second internal housing respectively. The pair of retractable pliers also comprises a locking structure which is arranged on the connection parts of the first and the second jaw part and which is capable of fixing the connection parts of the first and the second jaw part together. Once the locking structure is open, the pliers heads can open automatically for convenience of use.

15 Claims, 7 Drawing Sheets

